**Statement**

**of**

**American Rivers**

**before the**

**Energy and Resources Subcommittee**
**Government Reform Committee**
**U.S. House of Representatives**

**March 15, 2006**

**Presented by**

**S. Elizabeth Birnbaum**
**Vice President for Government Affairs**

**STATEMENT OF S. ELIZABETH BIRNBAUM**
**VICE PRESIDENT FOR GOVERNMENT AFFAIRS**
**AMERICAN RIVERS**
**BEFORE THE ENERGY AND RESOURCES SUBCOMMITTEE**
**OF THE GOVERNMENT REFORM COMMITTEE**

**March 15, 2006**

Mr. Chairman, Congresswoman Watson, and members of the Subcommittee, thank you for the opportunity to present testimony on Strengthening the Nation's Water Infrastructure and U.S. Army Corps of Engineers Planning Priorities. My name is Liz Birnbaum, and I am the Vice President for Government Affairs at American Rivers, the nation's leading river conservation organization. American Rivers has more than 40,000 members, and works in partnership with thousands of local river and watershed organizations. American Rivers also co-chairs the Corps Reform Network, a growing coalition of more than 135 grassroots, regional, and national organizations from across the country working to modernize the way the Corps of Engineers (Corps) plans and constructs water projects.

To protect lives, communities, the economy, and the environment, Congress must change the nation's approach to water resource planning and modernize Corps project planning. There can be no stronger evidence of this need than the horrifying flooding of New Orleans after Hurricane Katrina. That unnatural disaster can be traced directly to misplaced priorities for water resource projects, flawed project planning and design, and construction of projects that destroyed the natural storm protection provided by Louisiana's coastal wetlands.

Unfortunately, these problems go far beyond New Orleans. Corps projects that destroy natural flood protection and essential habitat, Corps projects based on flawed analyses, Corps projects that are not needed and that do not address national priorities, Corps projects that wreak havoc on recreation, tourism, and other businesses that rely on healthy rivers, and Corps projects that squander agency resources and scarce tax dollars can be found all across the country.

American Rivers opposes the passage of another Water Resources Development Act until the rules and policies governing Corps project planning are modernized to ensure that future Corps projects are sound, address national priorities, and safeguard healthy ecosystems that protect and sustain communities.

## The Post-Katrina Flooding of New Orleans Tragically Highlights the Urgent Need to Modernize Corps of Engineers Project Planning

Corps project planning clearly contributed to the post-Katrina devastation of New Orleans. Poor design by the Corps appears to have caused the floodwall failures that led to the flooding of most of New Orleans. Corps projects destroyed coastal wetlands that were thus not available to buffer the hurricane storm surge, funneled and intensified that surge into New Orleans, and encouraged the development of highly floodprone areas. Regrettably, all evidence to date supports the New

Orleans Times Picayune's description of the Corps as the "agency whose mistakes led to the deaths of more than 1,000 residents of this metro area."[1]

The New Orleans disaster highlights a number of critical problems with the Corps' planning process that must be addressed.

**First, Corps projects repeatedly fail to provide their promised benefits because of flawed project planning and design.** The catastrophic structural failure of the floodwalls and levees in New Orleans has been described as "the greatest engineering failure in American history, measured by lives lost, people displaced and property destroyed."[2] A panel of the American Society of Civil Engineers looking into the hurricane protection system failures has concluded that the system's catastrophic failure "demonstrates" that "fundamental flaws were part of how the system was conceived and developed."[3] That hurricane protection system was planned by the Corps.

Hurricane Katrina was no more than a Category 3 storm by the time it reached New Orleans, a storm event that the floodwalls were supposed to protect against. But Ivor Van Heerden, deputy director of the Louisiana State University Hurricane Center and director of the Center for the Study of Public Health Impacts of Hurricanes in Baton Rouge who has been investigating the system-wide failures, has said that the "system wasn't even capable of withstanding a Category One hurricane."[4] The floodwall design did not meet the Corps' own guidelines, and the Corps knew of – but did not modify its design to address –extremely unstable soils under sections of the floodwalls that warranted a much stronger design.[5] As disturbingly, the Corps ignored crucial data on the need to increase the levee heights. The Corps was informed as early as 1972 that new weather data showed that the levees needed to be higher than planned to protect New

[1] Editorial, *Divided we flood*, New Orleans Times Picayune, February 8, 2006.
[2] Editorial, *After the Flood, Is New Orleans Safe?*, The Register-Guard (Eugene, Oregon), March 5, 2006, available at http://www.registerguard.com/news/2006/03/05/printable/ed.edit.return.0305.hr19yUF4.phtml?section=opinion (last visited March 13, 2006).
[3] Letter from the American Society of Civil Engineers External Review Panel to LTG Carl A. Strock, Chief of Engineers regarding the External Review Panel Progress: Report Number 1, February 20, 2006.
[4] Helen Lambourne, *New Orleans 'risks extinction'*, BBC News, February 3, 2006, available at http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/4673586.stm (last visited March 13, 2005)
[5] *E.g.*, Testimony from the November 2, 2005 Senate Homeland Security and Government Affairs Committee hearing, available at http://hsgac.senate.gov/index.cfm?Fuseaction=Hearings.Detail&HearingID=290 (last visited November 11, 2005); Bob Marshall, *Corps never pursued design doubts*, New Orleans Times Picayune, December 30, 2005; Kris Axtman, *Search for weak link in Big Easy's levees*, Christian Science Monitor, December 30, 2005; Lisa Myers, *New Orleans levee reported weak in 1990s*, MSNBC, September 30, 2005 available at http://www.msnbc.msn.com/id/9532037/ (last visited October 5, 2005); Ken Kaye, *Katrina may have been a Category 3 hurricane, not 4, when it struck New Orleans*, South Florida Sun Sentinel, October 4, 2005; Michael Grunwald and Susan B. Glasser, *Experts Say Faulty Levees Caused Much of Flooding*, Washington Post, September 21, 2005 at A01; Christopher Drew and Andrew C. Revkin, *Design Shortcomings Seen in New Orleans Flood Walls*, New York Times, September 21, 2005.

Orleans from stronger hurricanes. However, this data was not incorporated into the hurricane systems design specifications by the time work began in the 1980s.[6]

As Senator Mary Landrieu (D-La) recently told the New Orleans Times Picayune, "We have an unprecedented natural disaster followed by a manmade disaster of neglect, poor design, faulty design – and no telling what else will be discovered" as the investigations continue.[7]

**Second, far too many Corps projects destroy vitally important natural systems that provide the first line of defense against floods.** In addition to the problems with New Orleans' flood control structures, the Corps' over-engineering of the Mississippi River contributed to the devastation of New Orleans through the drastic loss of natural protection from coastal Louisiana wetlands. Since the 1930s, Louisiana has lost about 1,900 square miles of wetlands, and prior to Katrina, Louisiana was losing an additional 24 square miles of coastal wetlands each year. According to the State of Louisiana's experts, every 2.7 linear miles of coastal wetlands reduces storm surges by about one foot.[8] Major contributors to these wetlands losses were the Corps' upstream projects that served as barriers to the sediment necessary to nourish coastal wetlands, and the downstream levees through the wetlands that pushed the remaining sediment load out into the Gulf. The lost coastal wetlands were not available to reduce the size of Hurricane Katrina's storm surge before it reached the New Orleans area, making the city far more vulnerable than it otherwise would have been.

Another Corps project, a navigation channel known as the Mississippi River Gulf Outlet (MRGO), also greatly exacerbated the hurricane's impacts. The MRGO destroyed or severely damaged some 20,000 acres of coastal wetlands that could have helped reduce the storm surge.[9] But the MRGO did even more damage. For years, community leaders, activists, and scientists had warned the Corps that the MRGO was a hurricane highway that would funnel hurricane storm surges directly to New Orleans, and called for closing the outlet. The concern was validated in May 2005 by Louisiana State University's Hurricane Center. Hydrodynamic modeling showed that a "funnel" created by the MRGO and a nearby waterway would amplify storm surges by 20 to 40 percent. Experts now believe that this is precisely what happened. The initial flooding that overwhelmed St. Bernard Parish and the lower Ninth Ward of New Orleans came from the MRGO. The impacts were devastating. Only 52 of the 28,000 structures in St. Bernard Parish escaped unscathed from Katrina. In 1998, the St. Bernard Parish Council had unanimously called for closing the MRGO.[10]

---

[6] Bob Marshall and Mark Schleifstein, *Corps ignored crucial levee data, Reports showed need for higher defenses*, New Orleans Times Picayune, March 8, 2006 available at http://www.nola.com/news/t-p/frontpage/index.ssf?/base/news-5/1141802754126640.xml (last visited March 13, 2006).

[7] Bob Marshall, *Overtopping claim won't hold water, experts say, Floodwall standards set in corps manual*, New Orleans Times Picayune, February 6, 2006, available at http://www.nola.com/printer/printer.ssf?/base/news-5/1139209587211190.xml (last visited March 13, 2006).

[8] http://www.msnbc.msn.com/id/9118570/ (last visited September 21, 2005).

[9] Louisiana State University, Louisiana Coast, and Sea Grant Louisiana, *"Closing" the Mississippi River Gulf Outlet, Environmental and Economic Considerations* available at http://www.ccmrgo.org/documents/closing_the_mrgo.pdf (last visited September 21, 2005). Maintaining this destructive outlet cost the federal taxpayers more than $12,600 per vessel per day. *Id*.

[10] Michael Grunwald, *Canal May Have Worsened City's Flooding*, Washington Post, September 14, 2005 at A21.

**Third, the Corps builds projects that encourage development in high risk areas.** The Corps planned the current New Orleans flood protection system after Hurricane Betsy hit New Orleans in 1965, killing 75 people. Instead of providing immediate protection by reinforcing levees located at the city's edge, the Corps planned an elaborate new system stretching miles into uninhabited wetlands. The Corps then claimed the increased property values of the newly drained wetlands as an economic benefit, and used those "benefits" to justify the project's $409 million price tag (this is the 1978 estimated price for construction). Tragically, many of the drained wetlands became the impoverished eastern Orleans Parish neighborhoods that suffered the brunt of Katrina's flooding.[11]

**Fourth, Corps projects and project funding do not prioritize national needs.** While Louisiana receives more money for Corps projects than any other state, the funding has not been directed to priority flood protection projects. Over the past five years, Congress sent $1.9 billion to Corps projects in Louisiana. During this period, California was a distant second, receiving less than $1.4 billion even though it has a population seven times as large as Louisiana, and five times the land area.[12] However, none of the money spent in Louisiana went to upgrade New Orleans' defenses to withstand a Category 5 hurricane. Instead of addressing real needs, in the past much money was directed to highly questionable non-flood control projects, including construction of a huge new lock for the New Orleans Industrial Canal and dredging little used waterways such as the MRGO, the Ouachita River, and the Red River (now known as the J. Bennett Johnston Waterway). New Orleans' repeated requests for increased flood protection garnered only a small appropriation to study the problem.

## Problems with Corps Project Planning Reach Far beyond New Orleans: A Decade of Calls for Reform

The flooding of New Orleans is irrefutable evidence of the urgent need to modernize and prioritize Corps' project planning. But it is by no means the only evidence. Throughout the past decade, a flood of studies from the National Academy of Sciences, Government Accountability Office, Army Inspector General, U.S. Commission on Ocean Policy, and independent experts have called for substantial changes to the Corps' planning process, and identified a pattern of stunning flaws in Corps project planning.[13] These reports show that the Corps' project planning problems are pervasive and affect projects nationwide.

For example, in 2003, the Government Accountability Office reported on disturbing problems with the Corps' Sacramento Flood Protection Project.[14] In October 1996, Congress authorized construction of a Corps plan to improve sections of the American and Sacramento Rivers levees

[11] Jim Barnett, *Instead of shoring up levees, corps built more*, The Oregonian, September 18, 2005.
[12] Michael Grunwald, Money Flowed to Questionable Projects, Washington Post, September 8, 2005 at A01.
[13] A list of these studies is attached to this testimony.
[14] United States General Accounting Office, GAO-04-30, *Improved Analysis of Costs and Benefits Needed for Sacramento Flood Protection Project*, October 2003 ("GAO Sacramento Project Review") at 1. The 1996 Water Resources Development Act that authorized this project became law on October 12, 1996 (Pub. Law 104-303). The Chief's Report recommending the project was signed on June 27, 1996. Pub. Law 104-303 at § 101.

that protect downtown Sacramento and a largely agricultural area just north of downtown that is being rapidly developed.[15] The plan, which avoids the more expensive and environmentally destructive Auburn Dam project, involves constructing cut-off walls in the center of the levees to make them more impervious to water seepage, which is a major cause of levee failure.[16] Just a few months later, however, it became clear that the Corps had not executed the levee project in a way that would provide the promised level of flood protection. As the GAO reported: "A severe storm in January 1997 demonstrated vulnerabilities in the American River levees and alerted the Corps of the need to do additional work to close the gaps in the cut-off walls at bridges and other areas and extend the depth of some cut-off walls from about 20 feet to about 60 feet."[17] Had the Corps proceeded with the original construction project, lives clearly would have been put at great risk.

The Corps' original plan also miscalculated the levels of flood protection that would result from the levees. The 2003 GAO report found that the Corps' original plan significantly overestimated both the area and the number of homes that would be protected by the project. "The actual number of protected residential properties was about 20 percent less than the number that the Corps estimated."[18] The Corps also did not properly assess the value of the properties it did count.[19]

The need for significant design changes to address these vulnerabilities dramatically increased the project's cost. In 1996, the Corps estimated that the project would cost $57 million. Just six years later, the project was estimated to cost at least five times that amount. In 2002, the Corps said the project would cost between $270 million to $370 million.[20] These dramatic cost increases, though still much cheaper than a major new dam, have a very real impact on the project's local sponsors, who are required to pay a percentage of the total project cost.

Levee problems in California also demonstrate the lack of prioritization of Corps project planning and construction. Congress appropriated $41 million in levee repairs and related flood control work for the Sacramento-San Joaquin Delta levee system in FY2006, but the Corps said it would need at least an additional $52 million to do all the repairs it could carry out this year. As Chairman Jerry Lewis (R- CA) has acknowledged, fixing the deteriorating levees "is a high-level, critical problem" and "people will be killed" unless something is done quickly to strengthen the levee system.[21] Under a worst-case scenario, failure of these levees would

---

[15] *Id.* at 1-2.
[16] *Id.*
[17] GAO Sacramento Project Review at 4.
[18] *Id.* at 5.
[19] *Id.* at 21.
[20] *Id.* Cost overruns are not unusual on Corps projects. For example, the Corps' estimate for just four of the many projects in its Everglades ecosystem restoration projects saw costs estimate increases totaling $1 almost billion in just five years. Gary Hardesty, U.S. Army Corps of Engineers, 5-Yr Report to Congress, HQUSACE Guidance, March 7, 2005 (this internal memorandum was leaked to the press, a copy is available at http://www.peer.org/docs/ace/2005_21_3_everglades_5-year_report.pdf (last visited June 1, 2005).
[21] David Whitney, House committee rejects $41 million levee funding, The Sacramento Bee, March 8, 2006, available at http://www.sacbee.com/content/breakingnews/v-print/story/14227620p-15051298c.html (last visited March 13, 2006).

submerge 3,000 homes, 85,000 acres of cropland, and contaminate and shut down the water supply to Central and Southern California.[22]

While much needed emergency repairs to California's levees have not yet been funded, $54 million has been appropriated since FY2003 to construct the proposed Yazoo Backwater Pumping Plant in the state of Mississippi, a project designed to promote intensified agricultural production in wetlands and other marginal farmlands.[23] In addition to clear problems with this project, these appropriated funds cannot even be spent for construction, as the project reevaluation report and environmental reviews still have not been completed.

The Yazoo Backwater Pumping Plant would cost federal taxpayers $191 million. Though the Corps touts this effort as an important flood control project, the project is nothing of the sort. In 2000, the U.S. Environmental Protection Agency reported that the project would drain or damage some 200,000 acres of highly productive wetlands, including portions of two National Wildlife Refuges. In addition to causing enormous habitat losses, this project will decimate natural flood protection in the region. A single wetland acre, saturated to a depth of one foot, retains 330,000 gallons of water – enough to flood thirteen average-sized homes thigh deep.

In addition to the unacceptable environmental costs and the direct costs of construction and operation, an independent economic analysis commissioned by the U.S. Environmental Protection Agency shows that if the project is constructed, the federal government will simply wind up paying more in farm subsidy payments. The Yazoo Pumps are specifically designed to drain wetlands so that agribusiness can intensify production on marginal lands that have always flooded, and some 80 percent of the project's alleged benefits will come from agricultural intensification. The independent study shows that increased farm subsidy payments will constitute virtually the entire very limited increase in farm income as a result of the Yazoo Pumps. The study also shows that the Yazoo Pumps will produce far less than 14 cents of agricultural benefits for each of the $191 million dollars it will cost to construct the project, and that the Corps overstated the agricultural benefits of the project by an incredible $144 million.[24]

The Yazoo Pumps will be constructed in one of the most sparsely populated regions in the state, and in an area that has not seen only very limited residential flooding since the Corps completed a major levee project in the region in the late 1970s. Federal Emergency Management Agency data shows that residential flooding is very limited in the project area, a fact that this is borne out by anecdotal evidence presented by the local *Deer Creek Pilot* newspaper during a 2003 series

---

[22] Kevin Starr, Commentary, *California's calamity in waiting*, Los Angeles Times, November 20, 2005, available at http://www.latimes.com/news/printedition/suncommentary/la-op-starrlevees20nov20,1,5109876.story?coll=la-headlines-suncomment (last visited March 13, 2006). Kevin Starr is a Professor of History at the University of Southern California. His latest book is *California: A History.*

[23] The Yazoo Pumps received $10 million in FY2003, $12 million in FY2004, $12 million in FY2005, and $20 million in FY2006.

[24] Leonard Shabman and Laura Zepp (Department of Agricultural and Applied Economics Virginia Tech), *An Approach for Evaluating Nonstructural Actions with Application to the Yazoo River Backwater Areas*, February 7, 2000; Leonard Shabman, *Comments on Yazoo Backwater Plan Reformulation Report Economics*, September 26, 2000, both available at http://www.epa.gov/region4/water/specialprojects/yazoo/ (last visited March 13, 2005).

examining the Yazoo Pumps. During the 24-year period from 1979 to 2002, only 62 properties within the Yazoo Pumps project area filed flood insurance claims under the National Flood Insurance Program. Collectively, these properties filed 209 claims for damages totaling $1.664 million. At that rate, it would take more than 2,754 years to recoup the $191 million construction investment in the Yazoo Pumps.

Structural projects like levees can be an appropriate approach to protect large, well-established communities from floods. These communities deserve the support of the nation to protect themselves. In these situations, levees should be designed and constructed with the most advanced engineering and rigorous oversight and review and be able to withstand a 500-year flood. However, proposals for such construction must be tempered with a clear understanding of the value of natural flood protection and the relative costs of various proposals. In other areas, removing levees or rebuilding them further away from the river channel may be the most effective option for providing needed protection and for relieving pressure on levees downstream. Under any scenario, however, structural projects like the Yazoo Pumps that destroy natural flood protection and vital fish and wildlife habitat, and that do not address significant flooding, should not be constructed and certainly should not receive priority over far more vital national needs.

## Corps Project Planning Must Be Modernized to Prevent Future Disasters

Although the problems are large, the solutions are manageable. With just a few systemic changes America can have the effective water resources and flood management agency it deserves. A bill recently introduced in the Senate, the Corps Water Resources Modernization and Improvement Act of 2006 (S.2288) would implement these much needed changes. Just this week, a letter from 125 national, regional, and grassroots organizations was delivered to the Senate in support of this legislation that will protect communities, the environment, and scarce taxpayer dollars.

Neither H.R. 2864, the Water Resources Development Act (WRDA) passed by the House in 2005, nor S.728, the WRDA reported by the Senate Environment and Public Works Committee in 2005, include these much needed reforms. Both of these bills must be reexamined in light of the water resources planning lessons so tragically highlighted by Hurricane Katrina.

The following reforms must be implemented before Congress gives the Corps more work to do. These reforms would give the Corps the tools it needs to a better job and would give Congress the information it needs to focus on national water resources needs:

**Corps projects must focus on national priorities.** As Hurricane Katrina so tragically demonstrated, the Corps does not prioritize projects to ensure public safety or to address the nation's most pressing needs. To protect communities and prevent future disasters, Congress must take steps to ensure that the Corps focuses its efforts on projects that will provide vital flood protection for population centers and critical infrastructure, and require that all Corps projects avoid impacts to natural flood protection systems.

Congress should require that Corps projects reflect national priorities for flood damage reduction, navigation, and ecosystem restoration, and provide guidance on setting those priorities. Congress should require that the Corps reduce the vulnerability of communities and critical infrastructure to flooding by designing projects that avoid the unwise use of floodplains, and that work to restore and maintain natural systems that provide the first line of defense against flooding. Congress should reinstate the Water Resources Council to develop guidance on prioritizing Corps projects and to assess the nation's vulnerability to floods to ensure that projects address the most pressing safety needs.

**The Corps' planning guidelines must be modernized.** The Corps is operating under woefully outdated planning guidelines that have not been updated in well over twenty years. These guidelines promote the destruction of healthy natural ecosystems that should be the first line of defense against storm surges and flooding; allow the Corps to recommend projects that encourage development of high risk areas, luring people into harm's way; and do not adequately address potential loss of life. In addition, the current guidelines discourage consideration of innovative and nonstructural approaches to water resources planning. They fail to account for the value of sustainable environmental protection, and ignore the value of services provided by natural water systems and wetlands, such as storing excess floodwater, cleansing and filtering water and providing habitat for wildlife. Indeed, under current rules, the Corps can count draining wetlands as an economic benefit of a project.

Numerous studies have called for updating the Corps' planning guidelines to provide an increased focus on protecting and restoring the environment, and to incorporate new methods and approaches to solving water problems. Congress should reinstate the Water Resources Council to develop revisions that will address these and other failings with the Corps' planning guidelines in consultation with the National Academy of Sciences. The Corps should be required to adopt those revisions, subject to public comment.

**Input from independent experts must be integrated into Corps project planning.** Multiple reviews have confirmed that many Corps projects are not based on the best available science, economics, or engineering, and that the Corps often ignores the views of the public, civic leaders, and scientists. It is essential that Congress establish a transparent process for obtaining oversight from independent outside experts who examine whether projects are designed to meet appropriate needs while minimizing costs and environmental harm. This input must then receive appropriate weight in the Corps' planning process.

Congress should require the Corps to subject all projects costing more than $25 million or projects that are deemed to be controversial to review by an outside panel of independent experts to ensure that those projects are properly designed; protect and restore natural systems that reduce flood damages and provide important ecological benefits; and ensure that limited resources are sent to effective, necessary project.

**The Corps must protect natural systems that provide the first line of defense against flooding and other vital functions.** The Corps often does not mitigate the impacts of its projects, adding to the loss of healthy systems that provide the first line of defense against flooding, are vital to fish and wildlife, and are essential for a vibrant economy. A May 2002

GAO report found that the Corps failed to mitigate at all for 69 percent of projects constructed since 1986, when the existing mitigation law was passed.[25]

Properly implemented mitigation will produce a host of vital benefits for communities, including much needed natural flood protection. As noted above, a single wetland acre, saturated to a depth of one foot, retains 330,000 gallons of water – enough to flood thirteen average-sized homes thigh deep. Healthy wetlands also filter pollutants from water; absorb and slow the release of storm runoff; recharge aquifers; provide crucial wildlife habitat for millions of migrating waterfowl, shorebirds, and other species; and provide recreation and enjoyment to millions of Americans who visit wetland areas each year. Fish and wildlife based recreation (which relies heavily on healthy wetlands) is a significant economic driver for the nation.

In addition to planning projects to avoid harming rivers and wetlands wherever possible, the Corps should be required to mitigate any impacts that cannot be avoided. To ensure effective mitigation, Congress should require the Corps to meet the same mitigation requirements as everyone else and establish clear requirements for mitigation plans.

## Conclusion

American Rivers urges Congress to act quickly and decisively to address the water resources planning lessons so tragically highlighted by Hurricane Katrina. The Corps' project planning process must be modernized to protect lives, communities, the economy, and the environment. We urge Congress not to pass another Water Resources Development Act unless needed reforms are included. We would be happy to work with the Committee to make these reforms a reality.

[25] General Accounting Office, *U.S. Army Corps of Engineers Scientific Panel's Assessment of Fish and Wildlife Mitigation Guidance*, GAO-02-574, May 2002 at 4. The Corps provided the mitigation planning information for 150 projects that it says were authorized between the Water Resources Development Act of 1986 and September 30, 2001 that received construction appropriations. The Corps included mitigation plans for only 47 of these 150 projects. *Id*.

# The Corps Must Be Modernized to Correct Project Planning Flaws Revealed By A Decade of Expert Analysis

***A Summary of Studies by the National Academy of Sciences, Government Accountability Office, Army Inspector General, and Independent Experts***

A decade of reports from the National Academy of Sciences, Government Accountability Office, Army Inspector General, U.S. Commission on Ocean Policy, and independent experts have revealed a pattern of stunning flaws in U.S. Army Corps of Engineers project planning and implementation, and urged substantial changes to the Corps' project planning process.

♦ ♦ ♦

2005 (November), R.B. Seed, P.G. Nicholson, et al. (Report No. UCB/CITRIS – 05/01), **Preliminary Report on the Performance of the New Orleans Levee Systems in Hurricane Katrina on August 29, 2005:** finds, based on field investigations performed by several teams of engineers and scientists in the wake of the passage of Hurricane Katrina, that three major and costly breaches in New Orleans levee systems appear to resulted from stability failures of the foundation soils and/or the earthen levee embankments pointing to failings in the design and oversight of construction of the levees by the Corps of Engineers, and that many of the other levees and floodwalls that failed due to overtopping might have performed better if conceptually simple details had been added and/or altered during their original design and construction.

2005 (September), GAO, (GAO-05-946), **Army Corps of Engineers, Improved Planning and Financial Management Should Replace Reliance on Reprogramming Actions to Manage Project Funds:** finds that the Corps' excessive use of reprogramming funds is being used as a substitute for an effective priority setting system for the civil works program and as a substitute for sound fiscal and project management. In FY 2003 and 2004, the Corps reprogrammed funds over 7,000 times and moved over $2.1 billion among projects within the investigations and constructions accounts.

2004 (October), National Academy of Sciences, **Review of the U.S. Army Corps of Engineers Restructured Upper Mississippi River-Illinois Waterway Feasibility Study (Second Report)**: finds flaws in the models used by the Corps to predict demand for barge transportation and concludes that these flaws preclude a demonstration that expanding the locks is economically justified. NAS also concludes that the Corps' study does not provide sufficient attention to inexpensive, nonstructural navigation improvements that could ease current barge traffic.

2004 (September), U.S. Commission on Ocean Policy, **An Ocean Blueprint for the 21st Century Final Report of the U.S. Commission on Ocean Policy**: recommends that the National Ocean Council review and recommend changes to the Corps' civil works program to ensure valid, peer-reviewed cost-benefit analyses of coastal projects; provide greater transparency to the public; enforce requirements for mitigating the impacts of coastal projects; and coordinate such projects with broader coastal planning efforts. Also recommends that Congress modify its current authorization and funding processes to encourage the Corps to

monitor outcomes from past projects and study the cumulative and regional impacts of its activities within coastal watersheds and ecosystems.

2004 (May), Congressional Research Service (RL32401), **Agriculture as a Source of Barge Demand on the Upper Mississippi and Illinois Rivers: Background and Issues:** finds that the grain traffic forecasts being used by the Corps to justify lock expansion on the Upper Mississippi River were overly optimistic as more and more grain is used to produce ethanol, livestock and other value-added products – products that are generally shipped by truck and rail, not barge. CRS further reports that significantly more grain is now being shipped by rail to Canada and Mexico (since passage of NAFTA) and to West Coast ports for shipment to Asia.

2004, National Academy of Sciences, **U.S. Army Corps of Engineers Water Resources Planning: a New Opportunity for Service:** recommends modernizing the Corps' authorities, planning approaches, and guidelines to better match contemporary water resources management challenges.

2004, National Academy of Sciences, **Adaptive Management for Water Resources Project Planning:** recommends needed changes to ensure effective use of adaptive management by the Corps for its civil works projects.

2004, National Academy of Sciences, **River Basins and Coastal Systems Planning Within the U.S. Army Corps of Engineers:** describes the challenges to water resources planning at the scale of river basins and coastal systems and recommends needed changes to the Corps' current planning practices.

2004, National Academy of Sciences, **Analytical Methods and Approaches for Water Resources Planning**: recommends needed changes to the Corps' "Principles and Guidelines" and planning guidance policies.

2003 (October), GAO (GAO-04-30), **Improved Analysis of Costs and Benefits Needed for Sacramento Flood Protection Project**: finds that the Corps dramatically miscalculated the costs and benefits of the Sacramento Flood Control Project in California, over-counted the residential properties that would be protected, miscalculated the area that would be protected, and used an inappropriate methodology to calculate prevented flood damages. GAO recommends that the Corps improve its cost benefit analysis and cost accounting procedures and submit the project to independent review (estimated to cost $57 million in 1996, by 2003 project costs had skyrocketed to between $270 and $370 million).

2003 (August), Pennsylvania Transportation Institute (PTI), **Analysis of The Great Lakes/St. Lawrence River Navigation System's Role in U.S. Ocean Container Trade:** finds fundamental flaws in the Corps' plan to expand the Great Lakes navigation system, including a host of factors not considered by the Corps that make the Great Lakes ports unattractive to international containerized cargo. PTI concludes that the Corps has not demonstrated that expansion is needed or that it would produce the claimed benefits and has not developed the necessary cost estimates to support an accurate benefit-cost analysis of the project.

2003 (May), Pew Oceans Commission, **America's Living Oceans, Charting a Course for Sea Change, A Report to the Nation, Recommendations for a New Ocean Policy:** recommends enactment of "substantial reforms" of the Corps, including legislation to ensure that Corps projects are environmentally and economically sound and reflect national priorities. Recommends development of uniform standards for Corps participation in shoreline restoration projects, and transformation of the Corps over the long term into a strong and reliable force for environmental restoration. Also recommends that Congress direct the Corps and other federal agencies to develop a comprehensive floodplain management policy that emphasizes nonstructural control measures.

2002 (September), GAO (GAO-02-803), **Oregon Inlet Jetty Project: Environmental and Economic Concerns Need to Be Resolved:** finds that the Corps' economic analysis does not provide a reliable basis for deciding whether to construct the project, as it relies on outdated and incomplete data and unsupported assumptions, and fails to account for risk and uncertainty in key variables that could significantly affect the project's benefits and costs. In addition GAO reports that Departments of Commerce and the Interior do not believe that the Corps has adequately mitigated for environmental concerns, including the project's impact on fish larvae migration, beach erosion, and wildlife habitat. GAO recommends that the project not proceed if the environmental concerns cannot be addressed.

2002 (June), GAO (GAO-02-604), **Delaware River Deepening Project: Comprehensive Reanalysis Needed***:* finds that the Corps overstated the project's benefits by 200 percent (the GAO found at most $13.3 million annual benefits vs. the Corps' $40.1 million), that the Corps' benefit cost analysis was based on invalid assumptions and outdated information, and that the Corps could not explain its own analysis and instead blamed $4.7 million of the differential on a computer error. GAO concludes that the Corps' analysis is so flawed that it can not provide a reliable basis for deciding whether to proceed with the project, and makes numerous recommendations for improving the Corps' analysis.

2002 (May), GAO (GAO-02-574), **Scientific Panel's Assessment of Fish and Wildlife Mitigation Guidance**: finds that the Corps has proposed no mitigation for almost 70% of its projects, and for those few projects where the Corps does perform mitigation, 80% of the time it does not carry out the mitigation concurrently with project construction.

2002, National Academy of Sciences, **Review Procedures for Water Resources Planning**: recommends creation of a formalized process to independently review costly or controversial Corps projects.

2001, National Academy of Sciences, **Compensating for Wetland Losses under the Clean Water Act:** highlights the significant problems with mitigation efforts to date, including mitigation carried out by the Corps (this report looks at issues beyond the Corps).

2001, National Academy of Sciences, **Inland Navigation System Planning: The Upper Mississippi River-Illinois Waterway:** finds that the Corps was using a fundamentally flawed model to assess the lock expansion project; Congress should direct the Corps to fully evaluate use of nonstructural measures; the Corps was not properly accounting for the environmental

consequences of its proposed plan; and the Corps' adaptive mitigation strategy is inconsistent with the principles of adaptive management articulated in the natural resources management literature**.**

2000 (November), Department of the Army Inspector General (Case No. 00-019), **Investigation of Allegations against the U.S. Army Corps of Engineers Involving Manipulation of Studies Related to the Upper Mississippi River and Illinois Waterway Navigation Systems:** finds that the Corps deceptively and intentionally manipulated data in an attempt to justify a $1.2 billion expansion of locks on the Upper Mississippi River, and that the Corps has an institutional bias for constructing costly, large scale structural projects.

2000 (February and September), Leonard Shabman and Laura Zepp, Department of Agricultural and Applied Economics Virginia Tech, **An Approach for Evaluating Nonstructural Actions with Application to the Yazoo River (Mississippi)** and **Review Comments on Yazoo Backwater Area Reformulation:** finds that the Corps' proposal to construct the $191 million Yazoo Backwater pumping plant in Mississippi overestimates just the agricultural benefits by $144 million, and claims almost $3 million in annual benefits that are explicitly prohibited by the Corps' own rules.

1999, National Academy of Sciences, **New Directions in Water Resources Planning for the U.S. Army Corps of Engineers:** recommends key changes to the Corps' planning process and examines the length of time and cost of Corps studies in comparison with similar studies carried out by the private sector.

1994, National Academy of Sciences, **Restoring and Protecting Marine Habitat: The Role of Engineering and Technology:** finds, among other things, that the Corps and all federal agencies with responsibility for marine habitat management should revise their policies and procedures to increase use of restoration technologies; take into account which natural functions can be restored or facilitated; improve coordination concerning marine resources; include environmental and economic benefits derived from nonstructural measures in benefit/cost ratios of marine habitat projects; and examine the feasibility of improving economic incentives for marine habitat restoration.